RP

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September 19, 1990
RP:0133

Mr. James K. Ikeda, Acting Chief
Environmental Management Division
Department of Health
Five Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
Honolulu, Hawai'i 96813

Dear Mr. Ikeda:

Section 401 Water Quality Certification Application
Wailani Stream Drainage Channel Improvements
Waipahu, O'ahu

We had previously prepared a review of the Environmental Assessment and the Application for a Stream Channel Alteration Permit for the above referenced project. For your information, we enclose a copy of our review.

If you have any questions, please call us at 956-7361.

Yours truly,

John T. Harrison, Ph.D.
Environmental Coordinator

Enclosure

cc: Roger Fujioka
Robert Irwin

Sub

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September 12, 1990
RN:0133

Mr. Manabu Tagomori, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawai'i 96809

Dear Mr. Tagomori:

Application for a Stream Channel Alteration Permit
Wailani Stream
Waipahu, O'ahu

The above referenced document discusses impacts associated with the rechannelization of approximately 400 feet of Wailani Stream extending above Farrington Highway in Waipahu. The rectangular concrete channel would transition to a trapezoidal earthen channel which will be widened for another 100 feet to a point just below Paiwa Street. It is unclear what the new width of this section of the channel will be.

This review was prepared with assistance of James Parrish, Zoology; Alison Kay, Zoology; Paul Ekern, Agronomy and Soil Science; and Robert Irwin, Environmental Center. Our reviewers generally agree that the significance of impacts resulting from this project cannot be evaluated adequately on the basis of the information provided in this EA. The following areas require additional consideration.

Stream Hydrography

It is not possible to assess the need for this project comprehensively without more information on stream flow volumes as well as flood volumes and velocities for the 20 and 100 year periods. Page 1 of the EA mentions that the new channel has been designed to accommodate 3,600 cubic feet per second (cfs). However, there is no discussion of present flow volumes. Page 7 notes that "a total of 868 acres has or will be diverted to [Kipapa Gulch and Panakauahi Gulch]" (Imata and Associates, Inc. 1986) but does not discuss the purpose of these diversions, associated permitting processes, and other pertinent background information.

We suggest that the following additional information be obtained before finalization of the permit: (1) a general description and survey of the stream beyond the section currently being considered, (2) a flow curve graphing seasonal flow volumes and velocities, (3) further discussion of the need for the proposed improvements, (4) a map of the entire length of the stream showing all diversions and tributaries, and the dimensions of existing channels above and below the project site

It is notable that the location map on the front page of the project blueprints conflicts with the location given on page 2 of the EA. However, because it is mentioned elsewhere that the stream flows into Middle Loch, we are assuming that the EA shows the correct location. According to Hawaii Stream Assessment, Hawaii's Streams and their Instream and Riparian Resources, A Conservation Point of View--Draft 1990, there is an unnamed perennial stream in this area.

Stream Biota

While it is unlikely that the stream at this stage in its history of alteration is a quality goby habitat, biological assessment at this point is limited to a one day, walk-by survey and cannot be taken as a complete assessment. According to the latest draft of the State Stream Assessment (cited above) the presence of a large number of O'opu Okuhe (classified as "native species group 2") is typical of a "healthy native stream ecosystem" (page 155). On the same page it is noted that O'opu Nakea (a "native species group 1;" this species was sighted twice during the AECOS study for the EA) is a representative of "potentially high quality stream ecosystems." Survey of further reaches of this stream (with particular emphasis on goby populations), along with more complete mapping of the modified lower section would facilitate more adequate assessment of stream habitat quality.

It was noted that invertebrates will be impacted directly by the alteration. No assessment of these impacts was made. It was noted also that "poeciliid" is a preferable term to "gambusoid" used on page 10 to describe a group of fish which occur 1000 feet above Farrington Highway.

Impacts of Proposed Alterations

Page 15 of the EA states that "direct impacts from construction on stream flora and fauna can be severe but not necessarily any greater than that which occurs during a major flood event." Our reviewers question the validity of this comparison, noting that the construction will completely alter the stream substratum--the primary habitat for all stream inhabitants (particularly O'opu Nakea). Floods may cause such disruption under extreme conditions in steep upper reaches of gulches but it is very unlikely that this would occur in a low land area such as that where the project is planned.

On page 15 of the EA, it is mentioned that "adverse impacts on stream ecology, including portions below the project (both long- and short-term), will not be significant unless major problems occur during construction, such as unusual losses of graded or grubbed material to high stream flow conditions." This sentence is quoted directly from the attached AECOS report. What mitigation measures will be taken to ensure that this will not happen? Here, information about flood seasons and volumes is particularly important. A flood avoidance and mitigation plan should be required as part of the permitting process.

The width of the trapezoidal section to be widened above the proposed rectangular concrete structure remains ambiguous. On page 16 the new trapezoidal channel is described as "very similar to what presently exists only slightly wider (from about 30 feet to 60 feet across at the base)." On page 8 of the appended AECOS report the same section is described as being "(from 20 feet to 30 feet across at the base)." Do these figures represent the range of present widths, or the present width "to" the proposed width? Which figure is correct? Ranges of width of this magnitude could have significant implications for the quality of habitat to remain after construction. A more detailed scale map overlaying existing channels with those that are proposed would help to clarify this issue.

On page 20, subsection (8), the EA does not adequately discuss cumulative effects of the project, and does not objectively weigh the need for the project against potential adverse environmental impacts. What is most lacking from the EA is a compelling argument demonstrating the need for the project. Indeed, it would seem that this discussion is needed on page 18 to demonstrate that the "no action" alternative is truly inappropriate.

We look forward to receiving further information which will clarify the need for the modified channels. We thank you for this opportunity to have commented on this document.

Yours truly,

John T. Harrison
Environmental Coordinator

Enclosure

cc:OEQC
Roger Fujioka
James Parrish
Paul Ekern
Alison Kay
Robert Kai Irwin

Noise, an inevitable consequence of construction work, will be generated for the duration of project. Heavy construction (and dredging) equipment will be used and noise in the range of 78-90 dBA can be expected. Along most of the channel length, noise should not pose a significant nuisance because adjoining lands are vacant and undeveloped. Construction noise may pose a temporary nuisance to occupants of several apartment buildings near Farrington Highway. Construction noise, like fugitive dust, cannot be avoided. All project activities will comply with noise provisions of Title 11 Administrative Rules of the State Department of Health (Chapter 43, Community Noise Control for Oahu and Chapter 42, Vehicular Noise Control for Oahu).

Slope stability may be affected by one or a combination of local soft zones in the fill layer, seepage zones, soil saturation from ponded surface water, channel erosion, and undrained settlements (Dames and Moore, 1988). During channel excavation, close monitoring is recommended to check for the presence of soft zones, seepage zones, and previously installed subdrains. If these conditions are encountered, soft zones are to be excavated, backfilled, and compacted with engineered fill; additional subdrains installed to drain seepage zones; and previously installed subdrains located and properly engineered to outlet into the channel.

Direct impacts from construction on stream flora and fauna can be severe, but not necessarily any greater than that which occurs during a major flood event. Increases in suspended solids during construction can have a negative impact on downstream areas, but the estuarine reach below the project boundary is an accretion zone where stream bed load accumulates and suspended solids settle out under normal flow conditions. Construction activities can be expected to produce short-term increases in the suspended load carried by Wailani Stream. Adverse impacts on stream ecology, including portions below the project (both long- and short-term), will not be significant unless major problems occur during construction, such as unusual losses of graded or grubbed material to high stream flow conditions.